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BENEFIT-COST ANALYSIS: ITS RELEVANCE TO PUBLIC INVESTMENT DECISIONS: COMMENT *

ROBERT H. HAVEMAN

In a recent issue of this *Journal*,¹ Arthur Maass urges a major revision in the application of benefit-cost analysis to public investment expenditures based on a substantive overhaul of the theoretical welfare basis of such applied analysis. Contemporary benefit-cost practice, he argues, is neither very useful nor very relevant because of its preoccupation with efficiency. Because the objectives of most public expenditures are primarily concerned with the redistribution of income rather than economic efficiency, the redistribution objective needs to be raised to a primal position in the evaluation of public investments. In his paper, Professor Maass presents both his views on the essential revisions in theoretical welfare economics and a proposal for incorporating these revisions into benefit-cost practice.

While Maass quite correctly recognizes that, given the constraints on pure income transfers, the redistribution consequences of public investments are of importance and must be incorporated into the decision process, it will here be argued that (1) welfare economists have already dealt with this precise issue, and (2) the Maass proposal for revising benefit-cost practice cannot, for several reasons, be taken seriously.

Prominent in the Maass paper is the implication that his concern for the redistribution implications of public investments fills what has been a theoretical and empirical void in the field of economics. Such implication is without warrant. Over a decade ago both Professors Little² and Meade³ analyzed the redistribution issue in terms similar to Maass's but with substantially more precision. Likewise, the concept of a multidimensional investment criterion including income redistribution as an element has been recently applied in at least two empirical welfare analyses.⁴

* The author wishes to acknowledge the helpful comments of J. C. Headley, C. W. Howe, B. Bower, R. Steinberg and, especially, J. V. Krutilla.

1. Arthur Maass, "Benefit-Cost Analysis: Its Relevance to Public Investment Decisions," this *Journal*, LXXX (May 1966), 208-26.

2. I.M.D. Little, *A Critique of Welfare Economics* (Oxford: Clarendon Press, 1950), Chap. VI, pp. 98 ff., Chap. VII, pp. 115 ff.

3. J. E. Meade, *The Theory of International Economic Policy*, Vol. II: *Trade and Welfare* (New York: Oxford University Press, 1954), Chaps. V and VII.

4. See Robert H. Haveman, *Water Resource Investment and the Public*

Nowhere in his paper does Maass betray any understanding of the distinction between benefit-cost and cost effectiveness analysis. Instead, he lumps together both public investments undertaken to correct market failure in the private sector and public expenditures designed to promote some aspect of the welfare of various disadvantaged groups. In so doing, Maass finds himself applying benefit-cost analysis both to public investments in which the efficiency content is of primary significance and efficiency impacts are measurable and to equity-based public expenditures in which the efficiency content is insignificant and the efficiency impacts are largely nonmeasurable. His insistence on analyzing these latter expenditure types through benefit-cost analysis rather than through the appropriate tool of cost-effectiveness analysis accounts, in large measure, for the inadequacy of his policy proposal.⁵ Can the efficiency content in any one of the existing equity (welfare)-based public expenditure programs be identified? Can a meaningful trade-off ratio between efficiency and equity be established for such programs on the basis of the identification? The answer, it appears, is negative, but, in any case, the burden of demonstration rests on Maass.

Throughout his paper, Maass equates the distributional impact of a public expenditure with the disbursement pattern of project benefits. He completely neglects the other channels by which public expenditures redistribute income. Consequently, the relevant concept of the *net* redistribution impact of an expenditure remains unrecognized and the analyst's ability to sift out the true redistribution impact is appraised with substantial overoptimism. Given the extreme difficulty of even roughly estimating the distributional pattern of (a) the resources withdrawn to finance nonreimbursable project costs, (b) the factor payments represented by the construction expenditure, (c) the secondary or indirect gains and losses, to say nothing of (d) the disbursement of benefits, the substantive improvements in public decisionmaking expected by Maass from a Congressional vote on trade-off ratios become chimerical.

Because of this naive view of the redistribution mechanism,

Interest (Nashville, Tennessee: Vanderbilt University Press, 1965) and A. Myrick Freeman III, "The Federal Reclamation Program and The Distribution of Income," unpublished Ph.D. thesis, University of Washington, 1965.

5. It is the existence of incommensurable costs and gains which generally necessitates cost effectiveness as opposed to benefit-cost analysis. In cost effectiveness analysis, the scale of either gains or costs is fixed and, as a rule, chosen apart from the analysis itself. See Charles J. Hitch and Roland N. McKean, *The Economics of Defense in the Nuclear Age* (Cambridge, Mass.: Harvard University Press, 1965), pp. 175-77 and A. R. Prest and R. Turvey, "Cost-Benefit Analysis: A Survey," *Economic Journal*, LXXV (Dec. 1965), 727-28.

Maass reinforces the unsubstantiated but widely accepted view that efficiency short-falls in public water resource investments are justified in that such investments do *in general* redistribute income in the "right" direction. Of the several purposes which water resource development serves, reclamation and power are the ones most likely to have favorable income redistribution consequences to, say, consumers or "family-sized" farm proprietors. At least three research efforts have dealt with the direction of the *net* redistribution impact of these programs.

In a recent study, Freeman ⁶ addressed both the question of the direction of the redistribution consequences of reclamation projects and that of whether or not they would all pass a "joint" test if increments of income and cost were weighted differently depending upon the income class of recipients and taxees. Freeman concluded that while the projects in his sample "were distributing income in the 'right' direction," the short-fall in efficiency benefits relative to costs was by no means compensated for by "redistribution benefits."⁷

While Freeman's findings appear to support Maass's implicit assumption on the direction of the redistribution involved in reclamation expenditures, the work of George Tolley ⁸ is also relevant. After analyzing the impact of the western reclamation program, Tolley concluded that about \$500 million worth of southern agricultural production or one southern farm worker in every twenty had been displaced by the reclamation program—hardly an impact in the "right" direction. Similarly, Krutilla and Eckstein ⁹ traced the distribution of costs and benefits from a power project in the Pacific Northwest. Assuming that the project had been financed through a tax reduction favoring consumption, over 75 per cent of the redistribution was found to have occurred at the expense of income classes of \$7,500 and under.

Finally, a recent study ¹ dealing with the distribution of income

6. *Op. cit.*

7. Much the same result was obtained in a study applying a multi-dimensional criterion function including income redistribution to some \$2.5 billion of Corps of Engineers projects. Roughly one out of five projects were found to be unacceptable even when substantial allowance for "income redistribution benefits" was included in the calculation. See Haveman, *op. cit.*, pp. 125-55.

8. George S. Tolley, "Reclamation's Influence on the Rest of Agriculture," *Land Economics*, XXXV (May 1959).

9. John V. Krutilla and Otto Eckstein, *Multiple Purpose River Development: Studies in Applied Economic Analysis* (Baltimore, Md.: Johns Hopkins Press, 1958), Chap. IV, VII, and VIII.

1. This study is being undertaken by the author and J. V. Krutilla and, as of this writing, is still in progress.

payments generated by all categories of water project construction has shown that it is not the low wage-high unemployment occupations which are demanded by water project construction; rather it is the higher income craftsmen which supply the bulk of labor requirements. Moreover, because of the regional pattern of industrial capacity, it is estimated that the southeast, the lowest income region in the nation, secures only a minute share of the income generated in projects constructed elsewhere in the country and retains less than one-third of the output generated by material demands from projects constructed within its bounds.

When we consider water resource development purposes additional to power and irrigation, there is still less reason to suppose that the expenditure of public funds results in a favorable redistribution. Shareholders in Federal Barge Lines, Peabody Coal, and Bethlehem Steel do not appear to be particularly more worthy than those who finance public waterway investment—and certainly not to the extent by which the social return from, say, the Arkansas River Navigation Project falls short of its social cost. It is likewise doubtful that flood plain real estate developers receiving land enhancement windfall gains from federal flood protection measures are more worthy than the taxpayers financing such projects.

On the basis of the available evidence then, the presumption pervading the Maass paper appears hardly warranted. The odds seem better than even that the direction of the income distribution resulting from public water resource investment accentuates rather than ameliorates the well-known efficiency short-falls.

Basic to the Maass proposal is a pair of judgments which, because of the potential mischief which they may well create, need to be made explicit and subjected to critical examination. These judgments are: (a) that public decisionmaking would become more effective if Congress, with prodding from the Executive, would elect a trade-off ratio between redistribution and efficiency benefits to be incorporated into the design criterion for project planning, and (b) that Congress has the sheer ability thus to discipline itself overtly in the area of public investment expenditures.

With regard to the first judgment, it is here suggested that effective long-term investment planning could not survive the certain oscillation of the policy trade-offs spun-off by the Congress. Because there is no single policymaker who is both rational and consistent, but rather a transient group of policymakers who, as a group, are neither rational nor consistent, Maass is required to demon-

strate that effective planning is capable of coping with such changing signals if his proposal is to be taken seriously.

With regard to the second judgment, a previous Congressional effort to impose guidelines on its actions needs to be recalled. Feeling a sense of outrage by the Bureau of the Budget's Circular A-47, the Senate of the eighty-fourth Congress sought to put things into proper perspective and resolved:

Sec. 4. That reports to the Congress in support of requests for authorization of projects for the conservation and development of land and water resources should include evaluations made in accordance with criteria prescribed by the Congressional committees having jurisdiction of the subject matter . . .²

Having so resolved, the Senate became appalled by the implications of its initiative and became completely paralyzed attempting to prescribe binding criteria. In fact, a Congress later, word went out from Capitol Hill that the affected agencies were rather to provide data on projects on the basis of a wide variety of alternative procedures and criteria and Congress would take its pick. Ten years have now elapsed since the fateful initiative and as yet there is no hint of an unequivocal and mutually consistent set of Congressional criteria. No greater success is anticipated for the Maass proposal.

In conclusion, it has been argued that, given institutional constraints on pure taxation — subsidy schemes, Maass's recognition of the income redistribution consequences of public expenditures and the need to account for them in the decisionmaking process is both appropriate and correct. However, because of his failure to recognize (a) the complex nature of the redistribution mechanism and the need for addressing the concept of *net* income redistribution, (b) the difficulty of identifying the efficiency content of basically welfare programs, and (c) the deleterious and costly impact on the planning process of constantly changing design parameters, the adoption of his proposed revisions of benefit-cost practice cannot be supported.

2. S. Res. 281, 84th Congress, 2d Session.